

The E-Learning of entrepreneurial skills through Practice Management and MOOCs. Projects, Perceptions and Perspectives

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Abstract

The paper presents the first results of some projects using learning by doing in the creation of start-ups through Practice Management by Simulimpresa. The purpose of these projects was to refine the teaching of entrepreneurial skills coupling the Practice Enterprise (PE) with MOOCs, Massive Open On line Courses. Both approaches can be included in the category of innovative teaching defined "Peer Learning" as an educational practice in which students interact to attain educational goals. In PE the challenge is the enterprise start-up. The theoretical framework is represented by Connectivism and its implications with Cognitivism and Behaviourism. The empirical field consists in experiences realized in Erasmus Projects. The research was based on the perceptions of students in the acquisition of entrepreneurial competences and on the comparison among results obtained in main functional units. Main findings concern the improvement of the teaching approach in digital learning according to the learners' functional destination.

Keywords: E-learning, Practice Enterprise, Entrepreneurial education

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1. Introduction

The paper presents the first results of some projects using educational technologies of learning by doing in the creation of start-ups through Practice Management by Simulimpresa. The purpose of these projects was to refine the teaching of skills creation coupling Practice Enterprise (PE) with MOOCs, Massive Open On line Courses. Both approaches can be included in the category of innovative teaching defined "Peer Learning" as an educational practice in which students interact with other students to attain educational goals (O'Donnel & King 1999). It concerns, also, the "Project Based Learning", a teaching method in which students gain knowledge and skills by working for an authentic, engaging, and complex challenges (Capraro, Capraro & Morgan 2013).

Specifically the challenge could be the enterprise start-up to teach entrepreneurial skills. The diffusion of Practice Management as didactical approach started at the beginning of 80' years in schools of different order and degree. In Mediterranean Countries, it was generally named Simulimpresa and in the last year the variety of realizations was reunified under the term Practice Enterprise (PE).

The theoretical framework is represented by the learning approach of Connectivism and its implications with Cognitivism and Behaviourism. The empirical field consists in experiences realized on this subject in Erasmus Projects and particularly in the HEIPNET Project¹. The research was based on the perceptions of students in the acquisition of entrepreneurial competences for the creation of start-ups and on the comparison among results obtained in main functional units.

Main and expected findings concern the improvement of the teaching approach in digital learning according with the functional destination of competencies and with the implication for the teacher leadership according to last contributions in the field (Bratton 2020).

2. Connectivism and blended learning

Referring to the implications linked to the introduction of digital technologies in education (Bates 2005), George Siemens (2005) proposed "connectives" as a learning theory that defines the basis of collaborative learning and open educational resources. This innovation, based on a teaching model focused on the learners and on a great interconnection between the participants' knowledge and transversal competences, is successfully used in the lifelong learning, in the updating and support of the training processes, and in the strengthening of the relationship between theory and practice of teaching (Tschofen & Mackness 2012).

The attempt made by the connectivism aims, on the one hand, to reach a more conscious and adequate use of the possibilities offered for the learning, with the

¹ HEIPNET: Inclusion of Innovative Work-Based-Learning and Business Partnerships in HEI Curricula Development, Erasmus+ Project 2019-2021. n° 2019-1-LT01-KA203-060514 – 999893752 Partners: University of Graz, Utena University Lithuania, LIBA Association Lithuania, EUROPEN-PEN International, University of Pavia.

interconnection promoted by digital technologies. On the other hand, it has the purpose to overcome the limits of previous theories such as Behaviorism, Cognitivism and Constructivism (Navarro 2000). Behaviorism, from its founder Watson and his eponymous Skinner (Monchinski 2008) focused the learning on the relationship among the stimuli and the conditions in which the educational process takes place and the results expressed by the manifest behaviour of individuals (Case & Bereiter 1984). About this approach the criticism of Chomsky significantly emerges (Czubaroff 1988), with a critique that we can define epistemological because it is not based on experimental data but on the discussion of the principles of behaviourism. The argument was if it is possible to separate the stimuli received from the complex environment in which the stimuli was produced, not necessarily neutral.

At the limits of behaviourism, especially in reference to the progresses of E-Learning, connectivism attempts to cope with the cognitivism that metaphorically assimilates the functioning of the mind to that of a software and consequently analyses the learning process in a neurophysiological key (Schunk 1991; Dunaway 2011).

It's natural the interest of management education for these innovation particularly as they affected the process of enterprise creation in which are involved the teaching of motivation, risk assessment, leadership, management, strategy, value creation etc. etc. Less obvious is the scarce attention given to innovative didactics applied to the education to entrepreneurship (Ciappei, Laudano, Zollo & Rialti 2016; Sooksan 2010; Nabi, Liñán, Fayolle, Krueger & Walmsley 2017).

Beyond the limited attention given by managerial theories to new didactical approaches as on line learning, the blended learning and the seamless learning (Arbaugh, Desai, Rau & Sridhar 2012; Hwang, Lai & Wang 2015), the PE, specifically implemented by Simulimpresa, and MOOCs, represent an empirical answer to those theoretical debates. This proposal, mostly developed by educational professionals and dealing with their empiric experiences (Graham, Woodfield & Buckley Harrison, 2013) has been considered in academic literature only in recent years.

The approach of PE and MOOCs could be inserted in the area of Blended learning and Connectivism (Bonk, Kim & Zeng 2005) as a combination of face-to-face and online learning and it could attract innovative experiences in the field of professional, lifelong learning and community culture (West R.E. 2017).

Most limits of present in the literature concerning these fields can be related to the subject of teaching as it concerns management and entrepreneurship.

Those topics concern particularly the most relevant attitudes of both the approaches, as it can be underlined:

1. The gain of practical experience
2. The development of transversal skills
3. The acquisition of a culture oriented to the self-achievement
4. The development of individual entrepreneurship orientation
5. The individualization of the training process
6. The support for decision and taking responsibility

Each of these characteristics defines a component of the entrepreneurship education and justifies the structured diffusion of PE, which is built around the creation of an entrepreneurial unit by students, in this way combining the educational approach and the learning process oriented. This process entails the entrepreneurship and connected topics like Human Resources Management, Team Management, Leadership (Reitz, Waller, Chaskalson, Olivier & Rupprecht 2020; 2017, Thorton Yoong 2011).

Particularly, it was pointed up that within different theoretical and experimental aspects of Constructivism, the most oriented to Connectivism is the authentic learning oriented to use authentic contexts, tasks, activities, and assessment to support knowledge transfer (Mattar 2018).

Few contributions was applied to distance learning considered from the point of view of learners (Young 2006). Particularly it was underlined the need of more training and support from educators (Conradie 2014; Scott Goldie 2016) and the relevance, in management learning, of the language and metaphors used, both aspects which need a particular and structured preparation (Kayes 2017).

Within this panorama, there is a scarce literature on managerial education concerning the role of Teachers in Practice Enterprise and MOOCs with a lack of discussion about different positions to be prepared to support the Teachers like Tutors and Mentors.

3. The learning analytics and the critical approach

Today, efforts to interpret the new teaching seem to be keeping pace as any further attempt to frame the concrete experiences of applying new educational technologies starting from behaviorism, cognitivism and constructivism, that seem not to affect the sector (von Krogh 2018).

Starting from Chomsky's theoretical critique of behaviorism, essentially devoid of empirical data, the prevailing feeling is the lack of valid and extensive quantitative analysis (MacCorquodale, 1970).

From the last decade, against this tendency, it takes shape the Learning Analytics, otherwise defined as an expression of technology- Enhanced Learning with a huge employment of data mining, data analytics and Peer Review (Suen 2014) on the way opened by the intelligent systems used for the improvement of learning (Kaklauskas et al 2015; Kaklauskas et al. 2010).

Critical approach on educational activities extends the focus of researches on the performance of educators in an attempt to identify weaknesses related to their preparation, their didactic approach and their ability to engage learners. The purpose is to better their preparation and competence in the use of new didactics with a more attentive consideration of learners feedback to the teaching, non-only as it concerns the knowledge acquired particularly as it concerns the "soft skills" (Strazzeri 2020) but on the change of their attitudes and the persistence of motivations acquired during the learning process.

Only in recent years, it is emerged a specific literature on this topic, grown with the aim of increasing the professional level of teachers in the field of the new educational technologies and of the critical management of teaching. (Dede, Eisenkraft, Frumin, &

Hartley 2016). Furthermore, it is examined the hierarchical positioning of the teacher with other actors influencing the learning result (Rehm,Gijselaers,& Segers 2015) as other components of the teaching staff (included technical one) and the environment in which the process happens (Bush & Glover 2014).

In this direction, two innovative approaches are moving. One, the so called the Practice Enterprise, already employed for a few decades, and another – the acronym of which is MOOCs - is of more recent application.

4. Practice management by Simulimpresa and MOOCs

The Practice Firm is a category of activities mainly dedicated to teach the practice to professionals and, less, to the reproduction in laboratory of the practice of management(Bianchi, Gualdi & Tampieri 2017), to carry on the research on organizations, with research purposes (Gopinath & Sawyer 1999).

As it regards the teaching, one of the categories of Practice Management, is Simulimpresa, which represents a didactic approach based on learning by doing developed in 80" years mainly through the network Europen-Pen². The simulation of entrepreneurial activities is based on the activity of learners who, in a classroom adequately equipped with internet and office devices, try to create and to manage a business in a very realistic way (Gualdi 2016). The teaching staff consists of the teacher with coordinating tasks, the tutors who support the teacher in the management of students in different functions and the mentor from a so-called mother who, with his advice, ensure a realistic simulation of the company created by students in the chosen business sector. In addition, this topic is related to the approach to managerial culture as observed in the development of managerial learning (Boyatzis, Stubbs& Taylor 2017).

Specific features are recognized to the didactics of Simulimpres, which can be described in the following ways:

1. authentic, that is contextualized, situated, as designed to reproduce authentic situations, representative of the company in all its organizational functions and therefore highly significant;
2. active, as the student is pushed to process incoming information, to connect and organize it efficiently and meaningfully, to have a systemic view of the situation and of the company as a whole;
3. constructive, in the sense that the new learning, through reflection, integrates with the previous one, developing and enriching it, thus providing meaningful being to the learning process;
4. intentional, as oriented to a very precise objective, the management of the business process;
5. cooperative, because one's knowledge is the fruit of a reworking of the group that discusses and shares (Bianchi & Tampieri 2013).

² Europen-Pen International is a non-profit organization that administers a worldwide network of over 7,000 Practice Enterprises (PEs) in schools, universities, vocational training institutions, companies and training centres around the world.

Based on these elements, the most recent literature attributes the most important contribution to constructivism and emerging technologies applied to learning to the sharing knowledge among individuals.(Anderson 2016; Von Krogh, Netland, & Wörter 2018)

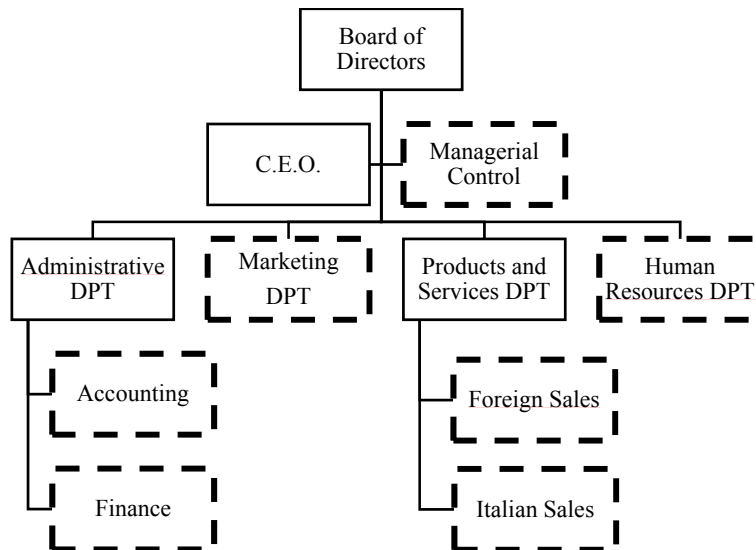
With these attributions, the cooperative learning become a valid tool for integrating cognitive, professional and social skills and the knowledge is the result of a reworking of the didactical group that discusses and shares methodologies, information and practical applications (Bianchi, Hernandez-Lara & Gualdi 2015).

A teacher - supported by a tutor - coordinates each classroom and a mentor engaged, once learners identify the sector of the start-up they want to create, from real companies. Tutors support students.

Teachers attend to the coordination of teaching activities, the motivation of teaching staff and students, the connections with PE Network, the supervising of Project Management and Quality Control. Teachers are also responsible of Classroom performance towards the institution together with the application of safety regulations.

Tutors support the teacher in the management of the classroom and the students in the PE Activities. Particularly, they make up for the lack of practical technical experience of students not only as it concerns the PE Methodology but also with regard to the entrepreneurial activities.

Figure. 1 – PE Organizational Chart³



Source: Own Elaboration

³ Based on Perting S.r.L. Simulimpresa Course, University of Bologna 2016. PE on Project management and merchandising, European Code IT01 PER. .In hatching, the units detected.

Mentors, normally linked to a mother company, bring their own practice and updated knowledge of the management and production processes of the PE as well as the reference market.

Table 1 - Projects with Practice Management and MOOCs experiences.

CHTMBAL - Tempus			
Network for Post Graduate masters in Cultural Heritage and Tourism Management in Balkan Countries	University D'Annunzio of Chieti-Pescara (IT)	Albania,Italy,Kosovo ,Poland,Spain	2012 2014
CEN EAST- Tempus			
CEN-EAST "Reformation of the Curriculum on Built Environment in the Eastern Neighbouring"	Vilnius Gedeminas Technical University Vilnius (LT)	Bielorussia, Italy, Lithuania, Russia, UK, Ukraine	2012 2015
CASCADE - Seventh Framework Programme			
Collaborative Action towards Societal Challenges through Awareness, Development, and Education	Salford/Huddersfield University (UK)	Afghanistan, Bangladesh, Bhutan, Estonia, Italy, France, Lithuania, Maldives, Nepal, Sri Lanka, Thailand, UK	2013 2015
RESINT - Life Long Learning Program Erasmus Multilateral Projects			
Collaborative Reformation of Curricula on Resilience Management with Intelligent Systems in Open Source and Augmented Reality	Unibo Campus Forli (IT)	Italy, Lithuania, Spain, United Kingdom,	2013 2015
BECK - Erasmus + Capacity Building in the Field of Higher Education			
BECK Integrating Education with Consumer Behavior Relevant to Energy Efficiency and Climate Change at the Universities of Russia, Sri Lanka and Bangladesh	Vilnius Gedeminas Technical University Vilnius (LT)	Bangladesh, Italy, Lithuania, Russia, Sri Lanka, United Kingdom.	2019 2022

Source: Own elaboration

The mother company represents a real company that refers to the PE experience both through a possible mentor and by making himself available to company visits or seminars for PE students aimed at improving the realism of the learning experience.

Another aspect of PE Didactics is represented by the assignment to students, of detailed responsibilities in the management of the virtual enterprise structured on a hierarchical-functional approach like the one applied in the afterwards mentioned research (Figure1).

The functional commitment, normally assigned to teams of two/ three students for each position, is established for the entire course if the duration is limited to 25/30 hours. Otherwise, for more extended courses, it operates a job rotation allowing to all students to experiment all roles and responsibilities.

The University of Bologna was the first University in Italy in 2001 to insert a PE course, under the name of Simulimpresa, in the curriculum of the students of Economics.

This experience was followed (in the academic year 2005-2006) by the one proposed by the same Faculty in the University of Parma: it was surely an innovative choice for those times, considering that only nowadays the use of technological tools and of blended learning in didactics is diffused in many global companies.

Within the advanced didactic forms, MOOCs are open in an easy way to everyone who wants to improve his/her culture without conditions for the enrolment but only with a basic knowledge to access the internet, a general culture and a strong motivation.

The teaching approach developed in the Massive Open On Line Courses, is delivered through platforms like Coursera, edX, and Udacity, and it follows the following steps, all of which can be performed online:

- Enrolment in the teaching units provided for the course
- Access to scheduled lessons
- Passing of the required tests (at least 60% of the questions)

MOOCs Courses are managed on the net platform with the diffusion of Lectures enriched with video, basic concepts and chats with other participants. At the end of each lecture, a step is represented by quizzes or open questionnaires. To pass to the next lecture, it is requested the attendance of the previous steps and a minimum of the percentage of good answers (Schuwer & al. 2015).

The final certificate of attendance could contain also Credits available as ECTS (Parry, Moseley, Gretton, Tunstall & Mobbs, 2016). Some of MOOCs managed by Universities implies to get Credits to be spend in the University curricula, offering a contribution n the whole path for students (Dillahunt, Wang & Teasley, 2014).

A relevant aspect of MOOCs is the blended approach they generally apply and its potential diffusion (Stracke 2014).

Researches detect in MOOCs some recurrent characteristics, which can be underlined so to clarify what they really are (Kennedy 2014):

1. an extremely differentiated variety of openness,
2. difficulties in the fulfilment of the entire course with high dropout and elements of learner isolation,
3. two distinct phases.

The first phase of MOOCs development (2009 - 2012) was characterized by connectivism with a huge networked approach and learner autonomy (Ebben & Murphy

2014). The most diffused users was represented, in this phase, by adult interested in Life Long Learning and Professional update.

The next period, which is still in progress, incorporates a critical review of the approach focused on the implementation of platforms and on the critical analysis of data deriving from the didactical tool itself and the deep use of ICT and data mining. This mainstream of research was defined as Learning Analytics and refers to measurement and analysis of data the learning process with the purpose of understanding and optimizing the methodology (Ferguson 2014; Sanchez-Gordon & Luján-Mora 2018).

5. The contribution of Project management

The line of projects involving firstly the Practice Management by Simulimpresa and, in the recent phases, the use of MOOCs, is listed at Table 1.

Among them, the BECK project currently underway is located specifically within this scenario. Co-financed by the Erasmus + Program of the European Union, this transdisciplinary project promotes a capacity building action in the branch of university education and third level.

In particular, the intent is to integrate education on consumer behaviour, in terms of energy efficiency and climate change in the universities of Russia, Sri Lanka and Bangladesh. The didactical experience of the European states involved in the project has to be transferred in beneficiary partners, as it concerns the specific skills of human resources.

The perspective is to develop entrepreneurial competencies able to use the skills acquired in local contexts. In this project, the University of Bologna focused the application of the PE and of the MOOCs, on the compatibility between the protection of the built heritage and of the improvement of the energy performance.

Within this subject, it takes on particular relevance the education to organizational functions that, in PE, ensure the managerial process. In the didactics of PE, these functions are distinguished in two main areas, the technical, prevalently using dedicated software (Managerial Control Finance, Accounting, Sales) and the creative one mostly applying Internet connections (Marketing, Human Resources).

6. The methodology of this experimental research

This paper reports the findings of a survey designed to understand the perception of students participating to Practice Management and MOOCs as it concerns the acquisition of competencies in different organizational functions⁴.

The survey consists in a questionnaire filled by 137 students of the University of Bologna, Economics, Management and Statistics School of Forlì, and Parma Department of Economics, who attended their respective courses in the Academic Years 2016/2017, 2017/2018 and 2018 / 2019. Each respondent was asked to describe a recent project

⁴ Survey and basic elaborations were made by Umberto Benvenuto, University of Bologna, School of Economics, Management and Statistics, Forlì.

and identify factors that were regarded as critical to that project's outcome, based on five multiple answers.

The simulated organizations were respectively:

- University of Bologna
 - Future Energy - Project management and merchandising for energy saving
 - Smart Light Culture - Soft lighting for cultural heritage (museums, archaeological sites, expositions, historical premises)
- University of Parma
 - SEC Cultural Energy Systems - Cultural Energetic Services - Projects and merchandising of Smart flooring, smart windows to ensure energetic flows in Museums and Galleries, Parks and Green Areas.
 - ESA Energy Saving - EcoGreenArt (EGA) - Non Profit Association for the promotion of sustainable tourism within the Parma geographical area.

In each Simulimpresa unit, the organizational functions were: Managerial Control, Marketing, Finance, Human Resources Management, Accounting, Foreign Sales, Italian Sales. To each of them were assigned three workplaces with an equal number of students.

In particular, the objectives set by the students were compared to the ones they have before starting the courses and was analysed the quality of the knowledge acquired at the end of the courses and qualified as Improvement, Enrichment, Self Confidence and Awareness. Was inserted also, as neutral or negative findings, No Difference and Greater Complication.

7. Main Findings

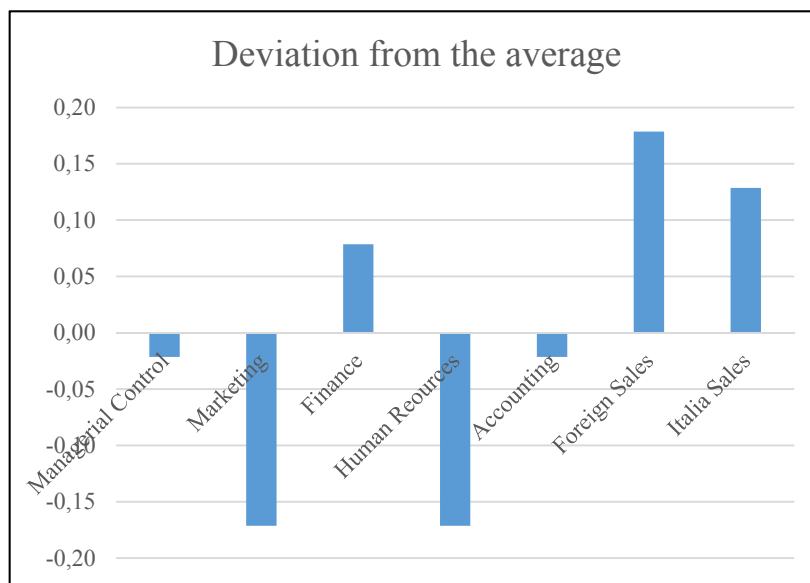
The results concerning the general appreciation of the course was showed in Figure 2 with the differences among functional units comparing to the average.

It emerges that Marketing and Human Resources have the most negative deviation from the average. Students attending to Marketing Units were mostly committed to individuate the design of the company web site, the strategy of sales and the products and services to offer. Components of Human resources Units were assigned by the teacher, once detected the attitudes and knowledge of participants, to select people for different functions considering the profile of competencies required.

A hypothesis, confirmed by interviews with participants, is that in these two functions the commitment and operative objectives were not as clear as it happened with other functions that were supported by a dedicated software.

At the other side, Foreign and Italian Sales Units, with the most relevant positive deviation, have in common a direct perception of the results of their work through the contact with customers and the positive trend of nosiness registered in each launch of products and services in the European network.

Figure 2 – Compared results of Simulimpresa Courses satisfaction in different functional units.



Source: Own elaboration

To this purpose, the satisfaction of Foreign Sales was considered more motivating as the implementation of sales trend was evaluated particularly difficult.

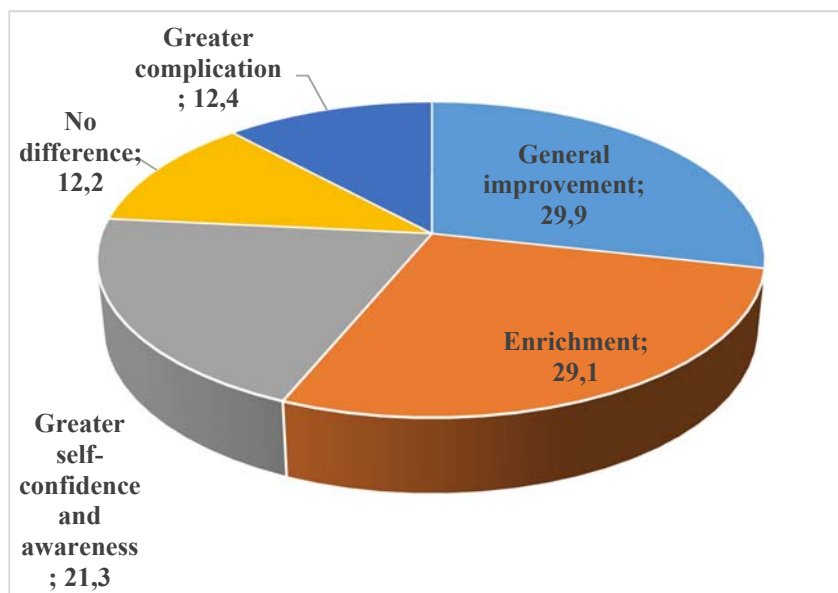
Most meaningful results of a deeper analysis of the questionnaire answers underline the General Improvement and Enrichment of the students' knowledge, followed by the fulfilment of a greater self-confidence and awareness in the use of managerial instruments (Figure 3). A minority point up the increasing of complications and the perceived difference comparing to the beginning of the courses.

As it concerns the quality of the improvement, the answers are shared among the five possibilities offered by the questionnaire (Figure 4) with a little prevalence of the more effective knowledge of application methods (23,6 %).

The results of the restricted test made on the two detected experiences confirms the expectations related to the appliance of learning by doing courses. Although deepest analysis, the extension of the teaching Practice Management using MOOCs is under test within the Project BECK⁵.

⁵ BECK Erasmus+ Capacity Building in Higher Education "Integrating education with consumer behaviour relevant to energy efficiency and climate change in Russian, Belarusian and Kazakh universities" 598746-EPP-1-2018-1-LT-EPPKA2-CBHE-JP.

Figure 3 – The perception of knowledge improvement after the attending to Simulimpresa Courses.



Source: Own elaboration

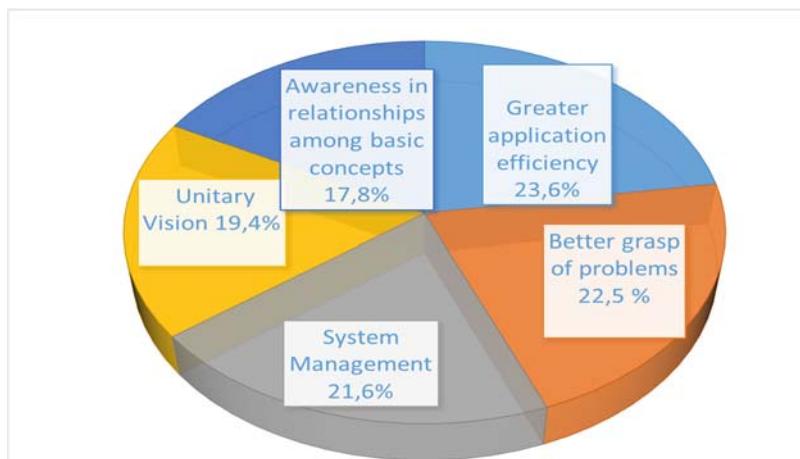
8. Conclusions and perspectives

This preliminary analysis of experimental observations till now detected leads to speculate that the limits of the blended learning supported by ICT could be mainly connected to the preparation of teachers. The idea of blended learning is fascinating and the ICT opportunities particularly favourable to its implementation.

The weak side of this innovative teaching is given by the inadequate preparation of the teaching staff in the specific didactics of PE which is correlate to the scarce attention given by the literature on the methodology of PE. Within this subject, a research topic worthy of further study is the intervention, in the PE learning process, of the three roles of teaching: the teacher, the tutor and the mentor

TI now the results were detected on the basis of students perceptions but is to be considered that at the end of the experimentation, the companies involved in the research passed the market test represented by the Network European-Pen in which they offer with success their products and services. This influenced naturally the attitude of participants and their satisfaction.

Figure 4 - The quality of the knowledge improvement after the attending to Simulimpresa Courses.



Source: Own elaboration

Actually, the research in progress is related to the preparation of a syllabus for PE Courses with applicative parts managed by a platform in which participants can interact with the teacher the tutor and the mentor. In the mentioned HEIPNET Project, this research is in depth testing the hypothesis formulated here in a wider sample and different contexts. One of these contexts is connected to the combined use of PE and distance learning with videoconferences, chats and posts and the BECK Project is preparing an experimentation with Instagram 9.0.

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